

of larvæ; variation of imagines, protective coloration, and defensive structures of larvæ; and classification. The Phylogenetic Tree illustrating the last section is extremely complicated, and will be found worth study, as graphically illustrating the author's views on the relation of the various groups of Lepidoptera.

It is not possible to speak of this portion of the book in detail. British and foreign authors are freely quoted, but large portions are founded on the direct observations of the author himself, or cast into a form regulated by his extensive knowledge of the subject.

The second part of the volume contains the life-history of a portion of the "Sphingo-Micropterygid stirps," working from the more generalized to the more specialized super-families, according to the system selected by the author. Only four super-families are discussed in the first volume—the Micropterygides, the Nepticulides, the Cochlidides (or Euclideanes), and the Anthrocerides—comprising about 100 species, giving an average of three or four pages to each species. In many cases, however, this limit is far exceeded, the notice of *Anthroceres filipendule* alone filling twenty-five pages, under the various heads of synonymy, original description, imago, sexual dimorphism, variation (with notices of varieties from α to ξ), ovum, larva, variation of larva, cocoon, pupa, dehiscence, food-plants, parasites, habits and habitat, time of appearance, localities, and distribution.

One commendable practice of the author's is to reprint the original description, whether short or long. In the case of *A. filipendule*, a Linnean species, it happens to be barely two lines long; but in the case of some of the *Nepticula* it runs to nearly a page. The relationships between foreign and British genera and species are likewise freely discussed.

We have said enough to show the enormous compendium of information which Mr. Tutt has brought together from all sources, published and unpublished, making his book a regular cyclopædia on almost all subjects connected directly or indirectly with British Lepidoptera. We hope that the author may receive some little return for the unavoidable amount of weary drudgery (to say nothing of the time spent in really interesting work) that he must have devoted to his self-imposed task, in the grateful recognition of his labours by his fellow Entomologists.

All about Birds. By W. PERCIVAL WESTELL.

'Feathers' Publishing Co. 8vo.

THIS should have been entitled 'The Young Bird-lover's Scrap-book.' It is nothing whatever but a collection of cuttings, more or less closely relating to birds, of varying degrees of merit, culled from good, bad, or indifferent sources; these are put together in no sort of order, but appear just as taken haphazard from the author's lucky-bag.

Some of the statements reproduced in this *olla podrida* are rather startling. As one who knows experimentally rather more than the

author perhaps, but yet is not in a position absolutely to disprove his haphazard assertion, the reviewer would be inclined to believe that a humming-bird could recede from an object without turning, exactly as a humming-bird moth can.

If Mr. Westell had only taken the trouble to prepare an index to his scrap-album, it is possible that some of the quotations from Gätke, Kearton, Bidwell, &c. might have been selected by his readers; but when they have to wade through such stuff as the statement that "Mr. Philip Crawley!", of Croydon, has the largest private collection of birds' eggs, some frivolous nursery rhyme, or a jest from one of the penny comic papers, it is not unnatural that one who desires to learn something about birds should not be attracted thereby.

MISCELLANEOUS.

The Poisons given off by Parasitic Worms in Man and Animals.

By G. H. F. NUTTALL.

MANY of the symptoms affecting the human subject as well as animals who harbour parasitic worms have been attributed by certain authors to poisons which the latter develop within the body of their host. Peiper, of Greifswald, recently published an article in which he gathered together a good deal of evidence from scattered sources, evidence which very clearly proves that a number of worms do give off poisons.

In the case of the *Ascaris* (familiarly called round or maw-worms), which are found in man, the pig, the cat, and horse, the evidence is very striking. There are a number of cases recorded where children who suffered from convulsions, loss of consciousness, great loss of flesh, anæmia, and other symptoms were promptly and permanently cured of all of these by the use of medicines ("anthelmintics," vulgarly called "worm-medicines"), which removed the parasites from the body. A number of authors have claimed that these parasites were simply injurious through their presence as foreign bodies within the intestine, as well as through their boring, their active movements, and their robbing their host of his proper share of the food he had eaten. That these worms contain some poisonous substance was claimed by Miram, who, whilst studying the *Ascaris megaloccephala*, suffered twice from attacks of sneezing, swelling of the eyelids, and excessive secretion of tears, besides severe itching and swelling of the fingers which had been in contact with the worms. Von Linstow noted that when these worms were cut open they gave off a sharp peppery odour and caused tears to flow from his eyes. Inadvertently touching his eye with a finger which had been in contact with these worms, a very severe inflammation of the conjunctiva, with a condition known as chemosis, resulted. Raillet, Arthus, and Chanson had similar experiences. The latter